



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/805,341	03/22/2004	Hiroaki Tsutsui	119174	8999

25944 7590 04/26/2007  
OLIFF & BERRIDGE, PLC  
P.O. BOX 19928  
ALEXANDRIA, VA 22320

EXAMINER
----------

KUGEL, TIMOTHY J

ART UNIT	PAPER NUMBER
----------	--------------

1712

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	04/26/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

## Office Action Summary

Application No.

10/805,341

Applicant(s)

TSUTSUI ET AL.

Examiner

Timothy J. Kugel

Art Unit

1712

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 02 April 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1, 2 and 4-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1, 2, 4-9 and 11-16 is/are rejected.
- 7) ☒ Claim(s) 10 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **DETAILED ACTION**

1. Claims 1, 2 and 4-16 are pending as amended on 8 February 2007.
2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 8 February 2007 has been entered.
3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

### ***Claim Rejections - 35 USC § 103***

4. Claims 1, 2, 4-9 and 11-16 stand rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent 6,287,485 (Akashi hereinafter) as evidenced by George W. Scherer, "Gel", in AccessScience@McGraw-Hill, <http://www.accessscience.com>, DOI 10.1036/1097-8542.283800, last modified: July 1, 2002 (Scherer hereinafter) in view of US Patent 4,891,119 (Ogawa hereinafter).

Akashi teaches an optical device comprised of a cell prepared from a pair of substrates sealed with a spacer (Column 3 Line 64 – Column 4 Line 14) containing particles (Column 8 Lines 7-22) of a polymer gel capable of reversible swelling-

Art Unit: 1712

contracting by absorbing-desorbing a liquid when a stimulus—such as the application of heat at between 20°C and 50°C (Examples 3-6 Column 15 Line 39 – Column 19 Line 7)—is given (Column 3 Line 64 – Column 4 Line 14 and Column 4 Lines 56-66) comprising a crosslinked and/or interpenetrating network of polymers of (meth)acrylamide and meth(acrylic acid) (Column 5 Line 52 – Column 7 Line 28), a swelling liquid (Column 10 Lines 52-67 and Column 15 Lines 13-20) and a light-modulating material (Column 8 Lines 7-22).

Regarding the amended limitation to claim 1 “wherein the particles of the three-dimensional cross-linked structure are dispersed in the liquid”; First, Akashi describes reference character 12 as the polymer gel and liquid (Column 11 Line 50 – Column 12 Line 26) and Fig. 1A and 1B show that the polymer particles are dispersed in the liquid; Second, in describing the system as a ‘gel’, Akashi is teaching the solid phase being dispersed in the liquid phase as shown by Scherer (Page 1 ¶1).

Akashi does not disclose expressly the other polymer being soluble in the liquid.

Ogawa discloses a polyacrylamide gel comprising acrylamide, N-methylacrylamide, and N,N-dimethylacrylamide independently and in combination (Abstract, Column 1 Lines 7-11 and Column 2 Lines 63-68), crosslinked with N,N'-methylenebisacrylamide as exemplified by applicant (Column 3 Lines 4-25), in an aqueous medium wherein the water-soluble polymer is dispersed within the three dimensional crosslinked polymer structure (Column 4 Lines 48-60).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the water-soluble polymer of Ogawa in the optical device of Akashi.

Art Unit: 1712

The motivation to do so would have been impart elasticity to the medium even when dried to the point wherein the medium becomes hardly breakable (Ogawa Column 4 Lines 3-11).

5. Claims 1, 2, 4-9 and 14 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Franck Ilmain et al.; Volume Transition in a Gel Driven by Hydrogen Bonding; *Nature*; Jan 31, 1991; 349; 6308 (Ilmain hereinafter) as evidenced by Scherer in view of Ogawa.

Ilmain teaches a polymer gel composition comprising a liquid—water—and particles of a polymer gel comprised of crosslinked partially ionized poly(acrylic acid) interpolymerized within a crosslinked poly(acrylamide) gel wherein the composition shows a reversible phase transition between 10°C and 50°C (Page 1 ¶¶1-4, Fig. 1).

Regarding the amended limitation to claim 1 “wherein the particles of the three-dimensional cross-linked structure are dispersed in the liquid”, in describing the system as a ‘gel’, Ilmain is teaching the solid phase being dispersed in the liquid phase as shown by Scherer (Page 1 ¶1).

Ilmain does not disclose expressly the other polymer being soluble in the liquid.

Ogawa discloses a polyacrylamide gel comprising acrylamide, N-methylacrylamide, and N,N-dimethylacrylamide independently and in combination (Abstract, Column 1 Lines 7-11 and Column 2 Lines 63-68), crosslinked with N,N'-methylenebisacrylamide as exemplified by applicant (Column 3 Lines 4-25), in an

aqueous medium wherein the water-soluble polymer is dispersed within the three dimensional crosslinked polymer structure (Column 4 Lines 48-60).

At the time of the invention, it would have been obvious to a person of ordinary skill in the art to use the water-soluble polymer of Ogawa in the composition of Ilmain. The motivation to do so would have been impart elasticity to the medium even when dried to the point wherein the medium becomes hardly breakable (Ogawa Column 4 Lines 3-11).

#### ***Response to Arguments***

6. Applicant's arguments filed 8 February 2007 have been fully considered but they are not persuasive for the reasons of record.

#### ***Allowable Subject Matter***

7. Claim 10 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims for the reasons of record.

#### ***Conclusion***

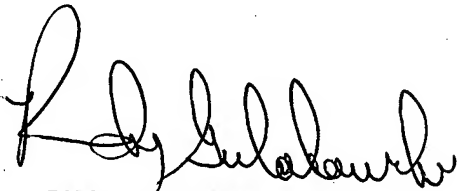
8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy J. Kugel whose telephone number is (571) 272-1460. The examiner can normally be reached 6:00 AM – 4:30 PM Monday - Thursday.

Art Unit: 1712

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Randy Gulakowski can be reached on (571) 272-1302. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

9. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TJK  
Art Unit 1712



RANDY GULAKOWSKI  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700